Ocean-based Negative Emission Technologies

OCEAN NETs

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Abstract: This deliverable reports about the successful completion of three group discussions on marine carbon dioxide removal (CDR) with laypersons in Germany. The 2-hour group discussions were held online. 5 participants discussed these three topics: (1) the environmental state of the oceans, (2) four selected marine CDR approaches, and (3) responsible research and innovation.
The four approaches were ocean fertilization, ocean alkalinization via ocean liming and electrochemical weathering in desalination plants, artificial upwelling, and blue carbon management via kelp forests, mangroves and seagrass meadows.

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31 March 2021

Deliverable 3.1: Summary report on Workshop 1 laypersons' perceptions of marine CDR
Christine Merk

We held 3 online group discussions in Germany on 30/31 March 2021. In each of the 2-hour-sessions 5 participants discussed their perceptions of these 3 topics: (1) the environmental state of the oceans, (2) four selected marine carbon dioxide removal (CDR) approaches, and (3) responsible research and innovation.

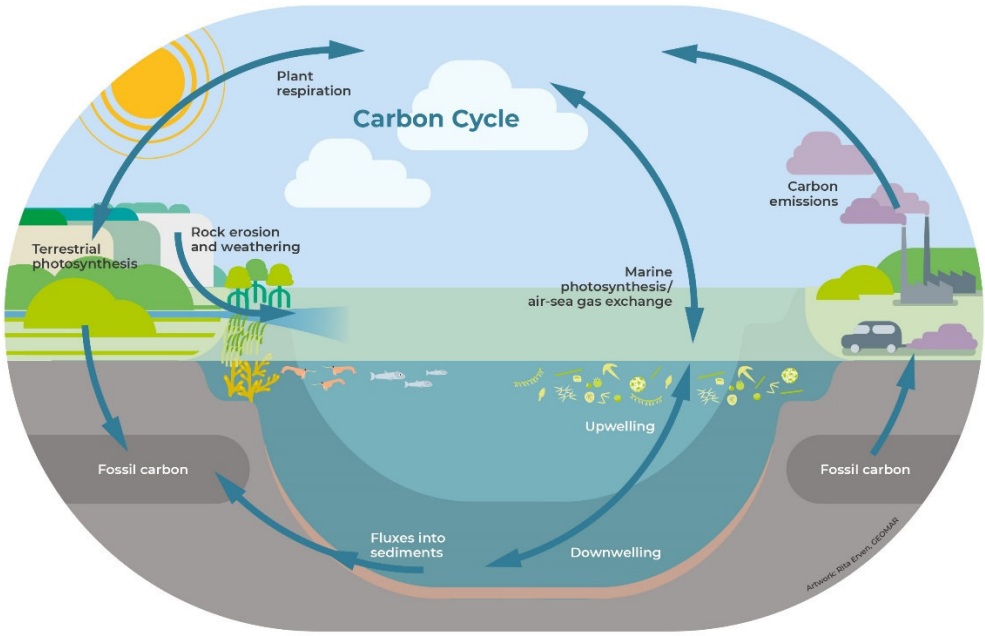
The participants were recruited by the subcontracted service provider IPSOS and selected based on their age, gender, and educational background to create diverse groups and enable a broad discussion. We excluded participants working in the field climate and environment to avoid that the discussions are dominated by experts. We only included participants who stated to be at least somewhat interested in the oceans to ensure that they would be interested to engage in the discussions.

Due to Corona restrictions the group discussions were held online instead of face-to-face. In the project proposal, we had planned to hold one in-person workshop for 6 hours with 10-12 participants. This is difficult to translate into an online setting because the attention span is lower in online meetings and the active interaction between people who have never met before is difficult to create in a virtual space and to maintain for 6 hours. Also engaging with 10-12 participants in an online setting is challenging. Together with the project partners at NORCE and the University of Oxford, we thus decided to reduce the number of participants to 5-7 and the duration of the groups to 2 hours. To broaden the potential to integrate diverse perceptions and viewpoints, we held 3 instead of one group discussion.

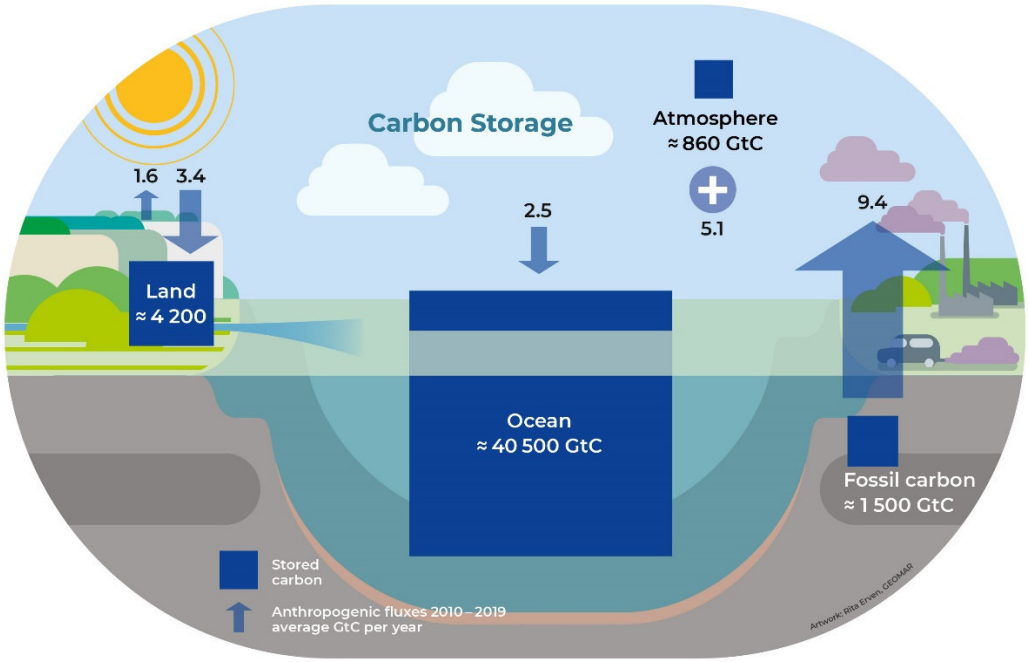
Two groups took place on 30 March 2021 from 4 to 6 pm and from 6:30 to 8:30 pm, the third group was held on 31 March 2021 from 4 to 6 pm. The group discussion was led by a professional moderator from IPSOS and by Christine Merk (OceanNETs, IfW). The moderators' task was to facilitate and guide the discussion, while Christine Merk briefly explained the graphics, replied to the participants' questions and asked clarifying questions. The discussion guide was developed together with the project partners at NORCE and at the University of Oxford; the same guide is used in 3 group discussions in Norway. The following marine CDR-approaches were discussed: (1) ocean fertilization, (2) ocean alkalinization via ocean liming and electrochemical weathering in desalination plants, (3) artificial upwelling, and (4) blue carbon management via kelp forests, mangroves and seagrass meadows. They were introduced and explained with the help of infographics (see English version below). OceanNETs WP3 researchers developed these graphics together with Rita Erven (responsible for graphic design), David Keller, Javier Lezaun, Judith Meyer, and Phil Renforth from the OceanNETs consortium.

Once the transcripts of the discussions from Germany and Norway are available, they will be analyzed to identify common and diverging themes in respondents' perceptions of the environmental state of the oceans, interventions into the marine environment, and marine CDR methods.

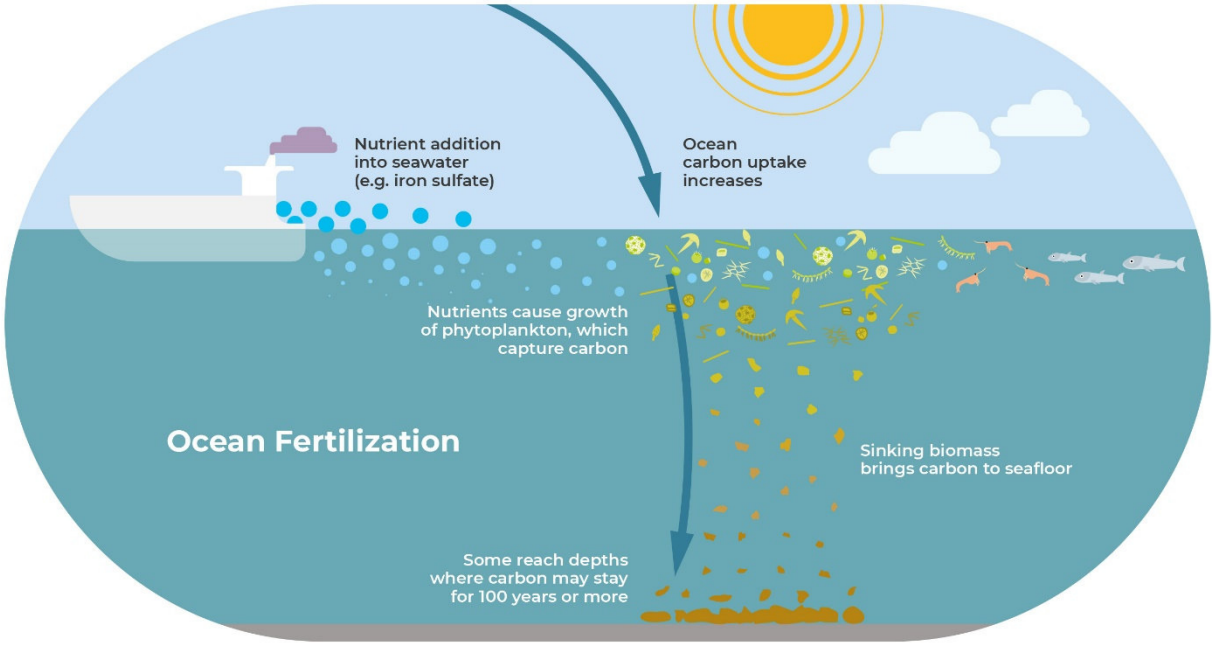
Infographics used in the group discussions



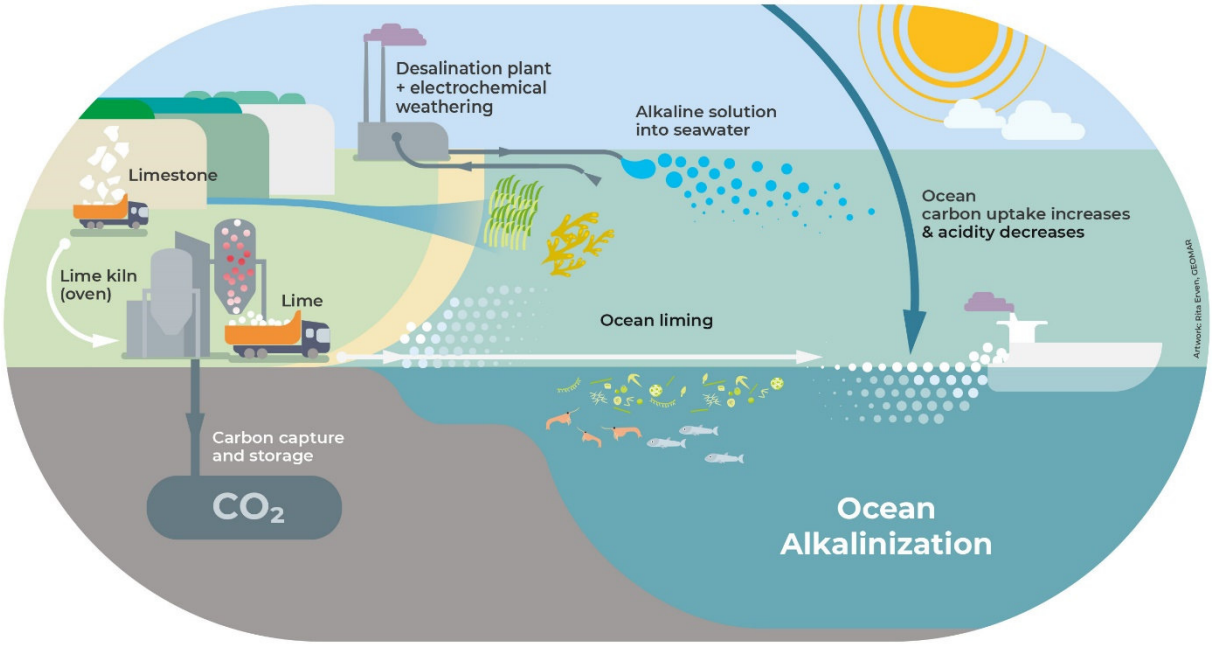
Graphic 1: Carbon cycle



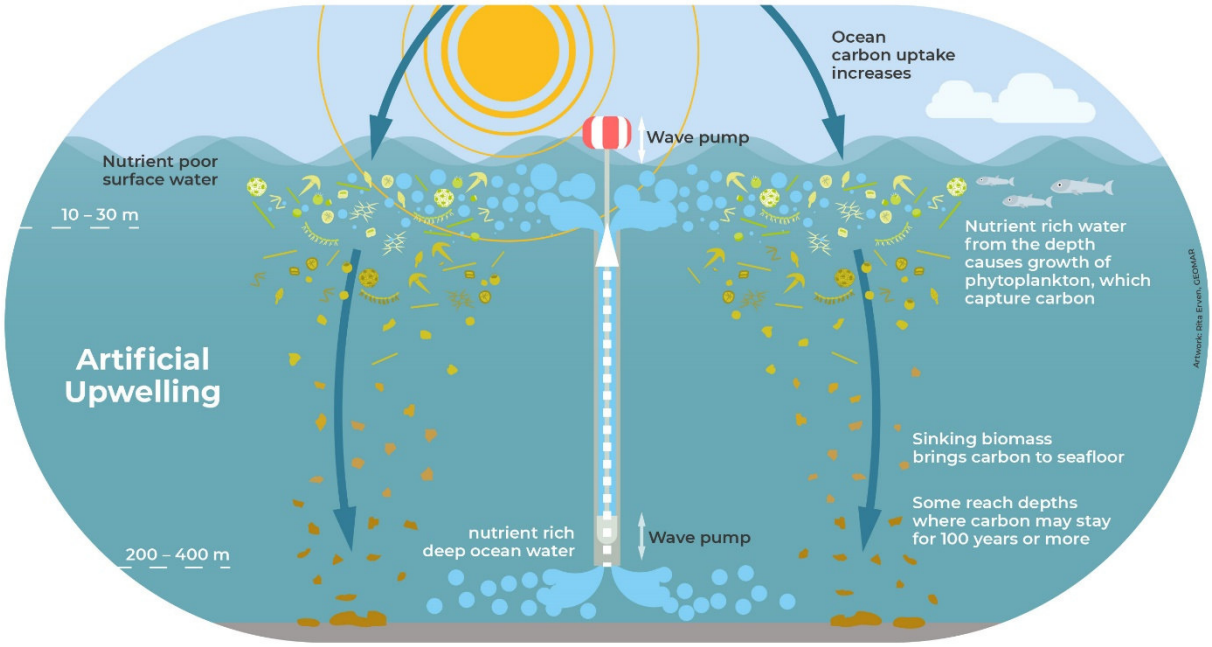
Graphic2: Uptake of anthropogenic carbon emissions 2010-2019 by land, ocean, and atmosphere taken from Friedlingstein, P., O'Sullivan, M., Jones, M. W., Andrew, R. M., Hauck, J., Olsen, A., ... & Zaehle, S. (2020). Global carbon budget 2020. *Earth System Science Data, 12*(4), 3269-3340.



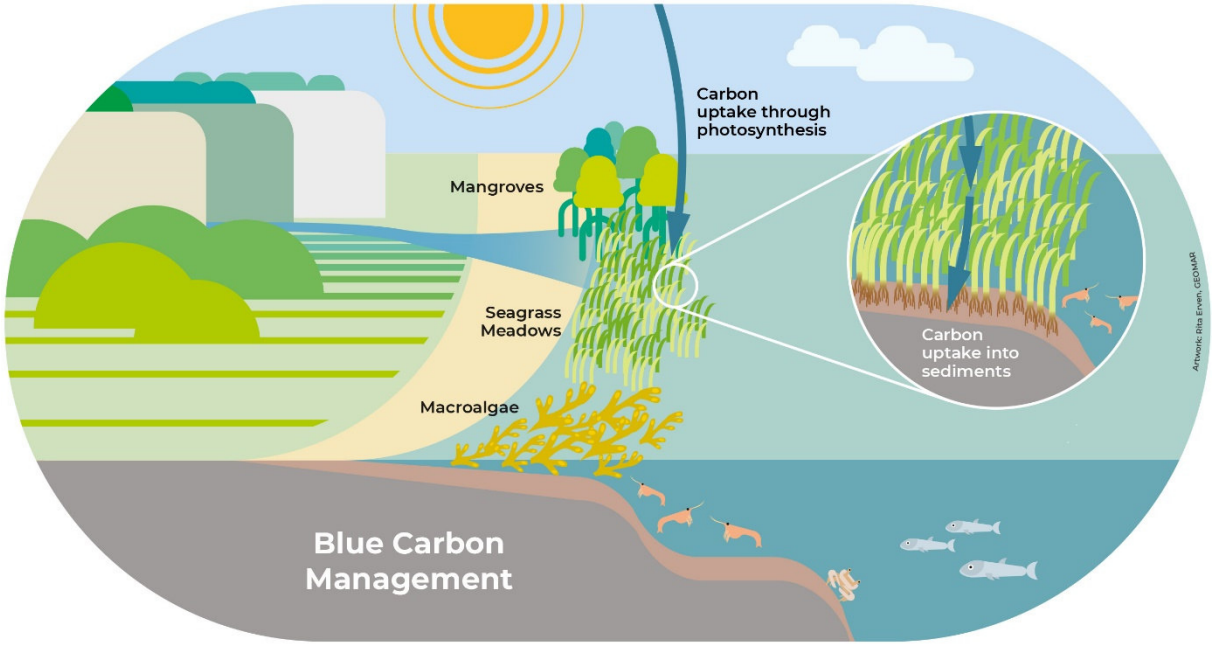
Graphic 3: Ocean fertilization



Graphic 4: Ocean alkalinization via ocean liming and electrochemical weathering in desalination plants



Graphic 5: Artificial upwelling



Graphic 6: Blue carbon management